

PANORAMIC STEREO EXPERIMENT

Project 9039

Letter Report No. 2
May 21, 1962

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This report covers work performed through May 16, 1962.

Test flights. On April 26 a flight was made over an east-west strip twenty miles long, near Modesto in the Central Valley. Flight altitude was 20,000 feet. The panoramic photographs were taken on Eastman Kodak SO-132 film. This film has a speed of f/1.6, which is rather slow, but has the very high resolving power of 400 lines per millimeter. In order to accommodate the longer exposure time needed for the slower film, the camera cycling rate was slowed to about 1.5 second. Forty exposures were made manually one-half mile apart; then the same ground areas were photographed in the return pass.

The same flight was programmed to include panoramic coverage over the San Francisco Bay area. The first pass was made over the East Bay shore, southeast to northwest, providing coverage of a great variety of natural and cultural features. Before the return pass could be made, a malfunction appeared in the film metering system of the camera. Another flight has therefore been planned for the week of May 21 to obtain the convergent Bay area coverage. An intervalometer setting is being used on the Bay area flights, so that the stereo mates will overlap instead of covering identical ground areas, as in the Central Valley photography.

In the test flights made to date, the cramped quarters in the Cessna 180 aircraft have obliged the photographer to kneel on the floor while making manual exposures. Before the final flight the co-pilot's seat and view finder will be reversed so that the photographer can sit comfortably, facing

aft. This adjustment will greatly improve the precision of ground coverage during long passes.

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Demonstration and evaluation. On May 15 representatives of the contracting agency visited [REDACTED] to inspect the stereo panoramic viewer and view sample strips of the convergent photography. The method of mechanical registration of images, described in the first letter report, was demonstrated, and possible means of optical registration were described. The human factors involved in binocular accommodation of panoramic images were reviewed, and it was shown that convergent panoramic stereo pairs could be viewed comfortably out to about fifteen degrees from the photo centers. The development of more elaborate equipment will increase the useful image area of panoramic stereo pairs. The possibility of combining monocular and stereo panoramic interpretation in a single operational system was also mentioned.

The final report will fully describe equipment and methods used in the panoramic stereo experiment, and will recommend refinements to be incorporated in an operational interpretation system.